

Remarks

Applicants respectfully request entry of the amendment to claims 1, 8, 16 and 23 as set forth herein to place the present application in condition for allowance or in better condition for purposes of appeal. Applicants respectfully request that claims 1, 8, 16 and 23 be amended. No new matter has been added to the application by virtue of the present amendments. Applicants believe the present amendments do not raise new issues requiring further search by the Examiner.

Claim Rejections - 35 U.S.C. § 112

The Examiner rejected claims 1-6, 16-17, and 19-23 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Examiner indicates the claim language as to claim 1 and claim 16 is not clearly understood, as to claim 1 and claim 16 it is not clearly indicated what is coupled to “a single summing junction” and how “the single summing junction” relates to “task” (i.e. couple to processor for combining atomic results of task).

Applicant has amended claims 1 and 16 to overcome the examiner’s rejection under 35 U.S.C. § 112, second paragraph. Reconsideration is respectfully requested.

Claim Rejections - 35 U.S.C. § 103(a)

The Examiner indicates that claims 1, 8-9, and 21-22 are rejected under 35 U.S.C. § 103(a), as being unpatentable over Kato (U.S. Patent Application Publication 2001/0051971 A1) in view of Magee et al. (U.S. Patent 5,729,710) and further in view of Firlie (U.S. Patent Application Publication 2002/0091752 A1). The Examiner rejected claim 23 under 35 U.S.C. § 103(a), as being unpatentable over Kato in view of Magee et al., further in view of Firlie as applied to claim 1 above, and further in view of Martin (U.S. Patent 4,466,064). The Examiner also rejected claims 2-6, 10, and 16-17, 19-20 under 35 U.S.C. § 103(a), as being unpatentable over Kato in view of Magee et al., further in view of Firlie, as applied to claims 1 and 8 above, and further in view of Koning (U.S. Patent Publication 2002/0133530 A1).

Rejection of claims 1, 8-9, and 21-22 under 35 U.S.C. § 103(a)

Applicants respectfully submit that Kato, individually or in combination with Magee, and/or Firlie, do not teach or suggest Applicants' independent claim 1 as amended, or any claims dependent thereupon.

Amended claim 1 is directed to a method of task management using memory ranges of shared memory, and recites:

...
“generating one or more temporal related tasks from the one or more executed tasks, and prioritizing and connecting the one or more temporal related tasks by their temporal relationship and inserting the temporal related tasks into a central task queue to be executed according to their temporal relationship by one or more of the plurality of processors,”
...

Kato, Magee, or Firlie do not explicitly disclose or suggest the element of: “generating one or more temporal related tasks from the one or more executed tasks, and prioritizing and connecting the one or more temporal related tasks by their temporal relationship and inserting the temporal related tasks into a central task queue to be executed according to their temporal relationship by one or more of the plurality of processors,”

As such the addition of Firlie does not overcome the deficiencies of Kato in view of Magee. Firlie does not disclose or suggest “generating one or more temporal related tasks from the one or more executed tasks, and prioritizing and connecting the one or more temporal related tasks by their temporal relationship and inserting the temporal related tasks into a central task queue to be executed according to their temporal relationship by one or more of the plurality of processors,” as required by claim 1. Instead, Firlie discloses merge computational results, where-as applicants claim new atomic tasks created by a previously executed atomic task. The resulting “new tasks” are then inserted into the central task queue according to its priority. The new tasks must inherit all the task attributes, e.g. memory access rights, from the previous creating task.

Applicants do not claim the combination of functional execution result as disclosed in Firlie,

rather applicants are claiming the management of the "control flow" mapping, as appeared in a library implementation, to available processors managed by a kernel.

Accordingly, claim 1as amended, is submitted to be patentably distinguished over Kato in view of Magee and further in view of Firlie for at least the above-mentioned reasons.

Applicants respectfully submit that Kato, individually or in combination with Magee, and/or Firlie, do not teach or suggest Applicants' independent claim 8, or any claims dependent thereupon.

Claim 8, which includes similar but not identical features to those of amended claim 1, is submitted to be patentably distinguished over Kato in view of Magee and further in view of Firlie for at least similar reasons to those set forth regarding claim 1.

Claims 9 and 21-22, which include all of the limitations of claim 1 or claim 8, are submitted to be patentably distinguished over Kato in view of Magee and further in view of Firlie for at least similar reasons to those set forth regarding claim 1 or claim 8.

Rejection of claim 23 under 35 U.S.C. § 103(a)

The Examiner has also rejected claim 23 under 35 U.S.C. § 103(a), as being unpatentable over Kato in view of Magee et al., further in view of Firlie as applied to claim 1 above, and further in view of Martin (U.S. Patent 4,466,064).

Applicants respectfully submit that Kato, individually or in combination with Magee, Firlie, and/or Martin do not teach or suggest Applicants' claim 23.

Claim 23, which includes all the limitations of claim 1, is submitted to be patentably distinguished over Kato in view of Magee and Firlie for at least the same reasons as set forth above regarding claim 1.

The addition of Martin does not overcome the deficiencies of Kato in view of Magee and

Firle. This is because Martin does not disclose or suggest “providing a summing junction as part of the kernel; and routing the combined execution results of the completed task to an input/output port for delivery to a calling process,” as required by claim 1. Instead, Martin discloses routing of execution result of a completed task. Applicants do not claim how the function result is managed, rather Applicants claim how to manage the function calling sequence (control flow) onto available processor resources managed by the kernel.

Accordingly, claim 23 is submitted to be patentably distinguished over Kato in view of Magee et al., further in view of Firle as applied to claim 1 above and further in view of Martin for at least the same reasons as set forth above regarding claim 1

Rejection of claims 2-6, 10, and 16-17, 19-20 under 35 U.S.C. § 103(a)

The Examiner has also rejected claims 2-6, 10, and 16-17, 19-20 under 35 U.S.C. § 103(a), as being unpatentable over Kato in view of Magee, further in view of Firle as applied to claim 1 and 8, and further in view of Koning.

Applicants respectfully submit that Kato, individually or in combination with Magee, Firle, and/or Koning do not teach or suggest Applicants’ claims 2-6, 10, and 16-17, 19-20.

Claim 16 as amended, which includes similar but not identical features to those of amended claim 1, is submitted to be patentably distinguished over Kato in view of Magee, further in view of Firle as applied to claim 1 and 8.

The addition of Koning does not overcome the deficiencies of Kato in view of Magee et al., further in view of Firle. This is because Koning does not disclose or suggest “scheduling the one or more atomic sub-tasks into a central task queue according to one or both of temporal and priority considerations,” as required by claim 16. Instead, Koning discloses how a scheduler can reassign resources to a run-able task based on the priority of the task. The order of the subtask appears in the queue is not corresponding to the actual priority. A processor might be pre-empted for another higher priority task whereas in the application as claimed by applicants they are run-to-completion.

In addition, Koning's does not disclose managing and propagating task attributes, e.g. memory access right and other kernel managed resource access, along the control flow of a program. The operating system kernel thus cannot distinguish if a processor executing a particular task can or should access certain kernel managed resource. A multi-core library framework requires a processor executing a sub-task to access the system resource only as its creating task. In applicants application, the task has already been prioritized and ordered according to the priority and temporal relationship in the queue. A sub-task always inherits from its creator a proper set of accessible rights.

Accordingly, claim 16 as amended, is submitted to be patentably distinguished over Kato in view of Magee, further in view of Firlie as applied to claim 1 and 8, and further in view of Koning for at least the above-mentioned reasons.

Claims 2-6, 10, 17 and 19-20 which include all of the limitations of claim 1, 8 or 16, are submitted to be patentably distinguished over Kato in view of Magee, further in view of Firlie as applied to claim 1 and 8, and further in view of Koning for at least the same reasons as their respective independent claims.

Based on the foregoing, Applicants respectfully traverse the rejection under 35 U.S.C. § 103(a) and submit that the rejections to the claims have been overcome.

Conclusion

In light of the foregoing remarks, all of the claims now presented are believed to be in condition for allowance, and Applicants respectfully request that the outstanding rejections be withdrawn and this application be passed to issue at an early date.

The Examiner is urged to call the undersigned at the number listed below if, in the Examiner's opinion, such a phone conference would aid in furthering the prosecution of this application. No fee is due by virtue of this response. However, if the PTO determines that a fee is required, please charge Applicants' Deposit Account, 09-0456.

Respectfully submitted,

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